

**R315. Environmental Quality, Solid and Hazardous Waste.
R315-101. Cleanup Action and Risk-Based Closure Standards.****R315-101-1. Purpose, Applicability.**

(a) Purpose. R315-101 establishes information requirements to support risk-based cleanup and closure standards at sites for which remediation or removal of hazardous constituents to background levels will not be achieved. The procedures in this rule also provide for continued management of sites for which minimal risk-based standards cannot be met.

(b) Applicability.

(1) R315-101 is applicable to any responsible party involved in management of a site contaminated with hazardous waste or hazardous constituents. This rule does not apply to a site that has been or will be cleaned to background.

(2) In the event of a release of hazardous waste or material which, when released, becomes hazardous waste, these requirements apply if the responsible party fails to clean up all the released material and any residue or contaminated soil, water or other material resulting from the release as required by R315-9-3. If the level of risk present at the site is below 1×10^{-6} for carcinogens and a Hazard Index of less than or equal to one for non-carcinogens based on the risk assessment conducted in accordance with R315-101-5.2(b)(1) and the Executive Secretary determines that ecological effects are insignificant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8), the requirements of R315-9-3 shall be considered met.

(3) The owner or operator of a hazardous waste management facility or a facility subject to interim status requirements shall meet the requirements of R315-7-14 and R315-8-7 prior to implementation of any activities described in R315-101. The requirements of R315-3-1.1(e)(5) and (6) shall be met for a hazardous waste management unit if the level of risk present at the site is below 1×10^{-6} for carcinogens and a Hazard Index of less than or equal to one for non-carcinogens based on the risk assessment conducted in accordance with R315-101-5.2(b)(1) and the Executive Secretary determines that ecological effects are insignificant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8). If these risk exposure criteria are met, a request for a risk-based closure may be submitted to the Executive Secretary for review.

(4) If the risk present at the site is greater than the exposure limit as defined in R315-101-1(b)(2) or (3) or the Executive Secretary determines that ecological effects may be significant, then a risk-based closure will not be granted and appropriate management will be required and may include corrective action, post-closure care, monitoring, deed restrictions, and security of the site. For determinations of appropriate corrective action or management activities at a site, the following criteria shall be considered in order of importance:

- (a) The impact or potential impact of the contamination on the human health;
- (b) The impact or potential impact of the contamination on the environment;
- (c) The technologies available for use in clean-up; and
- (d) Economic considerations and cost-effectiveness of clean-up options.

R315-101-2. Stabilization.

The responsible party must immediately take appropriate

action to stabilize the site either through source removal or source control. After the responsible party has attempted to complete the requirements of R315-9 and the Executive Secretary determines that additional work is needed to stabilize the site, the Executive Secretary will notify the responsible party that additional work is necessary and provide the responsible party with objectives to be addressed in developing a work plan to further stabilize the site. The work plan shall be submitted to the Executive Secretary for review and approval within fifteen days of receiving notification that additional work will be necessary to complete the emergency actions required by R315-9. Work plans shall be of a scope commensurate with the work to be performed and site-specific characteristics. This work plan shall include a description of the interim measure and how it will meet the criteria of source removal or source control. The implementation of the work plan shall be according to the schedule contained within the approved plan. All interim measures shall be at the expense of the party responsible for the site. If the party responsible for the site fails to take the measures required for stabilizing the site, the Executive Secretary may request the Executive Director of the Department to take abatement and cost recovery actions as provided in Section 19-6-301, et seq., Utah Hazardous Substances Mitigation Act.

R315-101-3. Principle of Non-degradation.

When closing or managing a contaminated site, the responsible party shall not allow levels of contamination in groundwater, surface water, soils, and air to increase beyond the existing levels of contamination at a site when site management commences. The responsible party will demonstrate compliance with this policy by submitting appropriate monitoring data or other data as may be required by the Executive Secretary. If at any time the level of contamination increases, the responsible party shall take immediate corrective action to prevent further degradation of any medium.

R315-101-4. Site Characterization.

The following information shall be collected to characterize the site, and define site boundaries and Area(s) of Contamination:

- (a) A legal description of the site;
- (b) Historical land use and ownership of the site;
- (c) Topographical map(s) of sufficient detail, scale, and accuracy to depict and locate all past and current physical structures including all building(s) and waste activities at the site;
- (d) Information and maps of sufficient detail, scale, and accuracy to describe regional, local, and site geology, surface water, and hydrogeological conditions;
- (e) An inventory of all current and past wastestreams managed at the site, including process descriptions and suspected contamination source information;
- (f) Background levels of suspected hazardous constituents based on the inventory as determined in R315-101-4(e) in media of concern, e.g. sediments, soil, groundwater, surface water, and air which are representative of the site; and
- (g) Location and boundaries of all Area(s) of Contamination, including concentrations, types and extent of hazardous constituents. Media to be sampled may include sediments, soil, groundwater, surface water, and air, as applicable.

R315-101-5. Health Evaluation Criteria, Risk Assessment.**5.1 REQUIRED STUDY**

(a) When conducting the risk assessment the responsible party will use all applicable site characterization data and shall consider the following parameters when conducting the risk assessment:

- (1) Identification, concentration, and distribution of all suspected hazardous constituents identified in R315-101-4(e);
- (2) All area(s) of contamination at the site;
- (3) Fate of contaminants and pathways of contaminant transport; and
- (4) Potentially exposed populations.

5.2 CHARACTERIZATION AND EVALUATION OF RISK

(a) The responsible party shall conduct a risk assessment which includes the following:

- (1) The concentration term "C" for each medium for each hazardous constituent identified in R315-101-5.1(a)(1);
 - (2) Evaluation of the fate of contaminants and of all pathways of contaminant transport identified in R315-101-5.1(a)(3);
 - (3) Exposure assessment identifying the RME for all exposure pathways, intakes, and identified constituents;
 - (4) Current toxicity information for carcinogenic and noncarcinogenic effects;
 - (5) Risk characterization identifying carcinogenic risk, individual and multiple substances, and noncarcinogenic hazardous index, individual and multiple substances;
 - (6) An ecological evaluation which provides for terrestrial and aquatic processes; and
 - (7) Current toxicity information for all the constituents and biological processes relevant to the ecological evaluation.
- (b) The risk assessment shall be conducted using one or both of the standard exposure scenarios listed below, as needed to determine site management options:

(1) Residential. This exposure scenario includes ingestion of water (must include surface water and ground water regardless of water quality), ingestion of soil and dust, ingestion of contaminated and potentially contaminated food, inhalation of contaminants, dermal contact with chemicals in soil, and dermal contact with chemicals in water for a human being ages zero through 70 years old using the equations and default variable values found in the Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual Supplemental Guidance, "Standard Default Exposure Factors", Interim Final, OSWER Directive 9285.6-03, March 25, 1991 or most recent edition;

(2) Actual land use conditions or potential land use conditions based upon applicable zoning and future land use planning considerations, if potential land use conditions offer a more protective exposure scenario than actual land use conditions. This exposure scenario involves an assessment based on actual site conditions using standard default variable values. The potential land use exposure scenario should include a conceptual model including current site conditions, expected future conditions based upon site-specific physical and chemical information, and the assumption that contaminated media will not have undergone any remedial engineering.

5.3 DATA PRESENTATION

(a) A risk assessment report shall be submitted to the Executive Secretary and must include at a minimum the following:

- (1) An executive summary;

- (2) An overview of the site and the areas of contamination;
- (3) A site characterization report which includes:
 - (i) Maps of sufficient detail and accuracy to depict areas of contamination, topography, geology, and groundwater contours or potentiometric surface;
 - (ii) Site and regional geological and hydrological descriptions;
 - (iii) A detailed discussion of areas of contamination;
 - (iv) Background levels of hazardous constituents including details of statistical methods used to determine background; and
 - (v) Descriptions of releases of hazardous constituents and expected extent of migration from the area of contamination.
- (4) Identification and concentration of hazardous constituents identified in R315-101-5.1(a)(1). A sampling and analysis plan shall be prepared and utilized for the collection of all data. This plan shall be developed using procedures and methods outlined in R315-50-6 and the most current version of "SW-846, Test Methods for Evaluating Solid Waste." It shall contain a summary outlining data quality objectives, completed analytical request forms for all analysis performed, dry weight equivalents, sampling location identification and justification, standard operating procedures used for data collection, all statistical analysis performed, quality assurance and quality control plans (QA/QC plan) and QA/QC results, instrument calibration results, and analytical methods including constituent detection limits;
- (5) Exposure assessment identifying exposure levels for all exposure pathways identified in R315-101-5.2(a)(3). If fate and transport models are used, the users manual, model theory, computer software for the model, installation verification data set for the model and parametric analysis of the input parameters must be provided upon request of the Executive Secretary;
- (6) Identification of toxicity information gathered for all identified hazardous constituents for carcinogenic, slope factors and weight-of-evidence classification, noncarcinogenic effects, chronic reference doses (RfDs) and critical effects associated with RfDs from, in order of preference, the Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profiles, Environmental Criteria and Assessment Office (ECAO), or other scientifically accepted listings. The source and date of the toxicological information must be identified and be acceptable to the Executive Secretary;
- (7) The risk characterization identifying carcinogenic risk, individual and multiple substances, noncarcinogenic hazardous index, individual and multiple substances, chronic hazard quotient, subchronic hazard quotient, uncertainties, and a tabulation of all risk characterization data presented in a format approved by the Executive Secretary; and
- (8) Unless justification is provided to the Executive Secretary, and a waiver of this requirement is granted by the Executive Secretary in writing, an ecological assessment of the site which contains at least the following:
 - (i) An inventory of the current biological community;
 - (ii) Estimates of ecological effects based on a subset of ecological endpoints;
 - (iii) The magnitude and variation of toxic effects; and
 - (iv) Identification of extent of effects, specifically from the presence of hazardous waste.
- (b) If the risk assessment report does not contain all required information of sufficient quality and detail, the Executive

Secretary will notify the responsible party in writing of the deficiencies and require resubmittal of the report in a designated time frame.

(c) If the risk assessment report contains all required information of sufficient quality and detail, the Executive Secretary will approve the risk assessment report in writing.

R315-101-6. Risk Management: Site Management Plan and Closure Equivalency.

(a) A site management plan which is supported by the findings in the approved risk assessment report shall be submitted to the Executive Secretary within 60 days of approval of the risk assessment report. This plan may be submitted along with the risk assessment report and must include a schedule for implementation.

(b) The Executive Secretary shall review and approve or disapprove of the conclusions of the proposed site management plan. If the Executive Secretary finds that the site management plan is not adequate for protection of human health and the environment, the responsible party shall then submit a revised site management plan addressing the comments of the Executive Secretary within an appropriate time frame as specified by the Executive Secretary. The Executive Secretary shall review and approve or reject the revised site management plan. Upon draft approval of the site management plan, the Executive Secretary shall follow the requirements of R315-101-7 prior to issuance of final approval. The approved site management plan shall be implemented according to the approved schedule. If the Executive Secretary rejects this revised site management plan, the revised plan will be considered deficient for the reasons specified by the Executive Secretary in a statement of disapproval.

(c)(1) The site management plan may contain a no further action option only if the level of risk present at the site is below 1×10^{-6} for carcinogens and a Hazard Index of "less than or equal to one" for non-carcinogens based on the approved assessment conducted in accordance with R315-101-5.2(b)(1) and the Executive Secretary determines that ecological effects are insignificant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8);

(2) The requirements of R315-3-1.1(e)(5) and (6) shall be deemed met for a hazardous waste management unit if the level of risk present at the site is below 1×10^{-6} for carcinogens and a Hazard Index of "less than or equal to one" for non-carcinogens based on the risk assessment conducted in accordance with R315-101-5.2(b)(1) and the Executive Secretary determines that ecological effects are insignificant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8). If this risk exposure criterion is met, a request for a risk-based closure may be submitted; or

(3) If the risk present at the site is greater than or equal to 1×10^{-6} for carcinogens or a Hazard Index of "greater than one" for non-carcinogens based upon the exposure assessment conducted in accordance with R315-101-5.2(b)(1), or the Executive Secretary determines that ecological effects may be significant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8), a risk-based closure will not be granted. The responsible party shall then submit a site management plan fulfilling the requirements of R315-101-6(d) or (e) as applicable.

(d) If the level of risk present at the site is less than 1×10^{-4} for carcinogens and a hazard index is "less than or equal to one"

for the risk assessment conducted in accordance with R315-101-5.2(b)(2) but greater than or equal to 1×10^{-6} for carcinogens or a hazard index is greater than one for a risk assessment conducted in accordance with R315-101-5.2(b)(1) or the Executive Secretary determines that ecological effects may be significant based on the approved assessment conducted in accordance with R315-101-5.3(a)(8), the site management plan may contain, but is not required to contain, procedures for corrective action. The site management plan shall contain appropriate management activities e.g., monitoring, deed notations, site security, or post-closure care, as determined on a case-by-case basis in accordance with criteria identified in R315-101-1(b)(4).

(e) The site management plan must contain procedures for corrective action if the level of risk present at the site is greater than or equal to 1×10^{-4} for carcinogens or a Hazard Index of "greater than one" for non-carcinogens based on the approved assessment conducted in accordance with R315-101-5.2(b)(2) or the Executive Secretary concludes that corrective action is required to mitigate ecological effects based on the approved assessment conducted in accordance with R315-101-5.3(a)(8). For determination of appropriate corrective action the criteria identified in R315-101-1(b)(4) shall be considered.

(f) If hazardous constituents are present only in groundwater at the site, and if the hazardous constituents are listed in Table 1 of R315-8-6.5, the Maximum Concentration Levels listed in Table 1 can be presented in lieu of health risk estimates for those constituents. The RME for Table 1 constituents must be determined in accordance with approved site characterization methods listed in R315-101-4.

R315-101-7. Public Participation.

(a) The Executive Secretary may provide for public participation in all phases of the cleanup action process, as defined in R315-101-4 through R315-101-6. As directed by the Executive Secretary and based on the circumstances and level of public interest at the site, pertinent work plans shall describe how information will be made available to the public through, for example, fact sheets or information repositories and, where appropriate, contain proposed time frames for public input through, for example, public meetings, hearings, or comment periods. The Executive Secretary shall also provide public notice, a public comment period, and public hearing(s) for the site management plan in accordance with R315-4-1.10 through R315-4-1.12 and R315-4-1.17.

R315-101-8. Cleanup/Management Action.

(a) Upon approval of the site management plan by the Executive Secretary, all remedial activities at the site shall proceed according to the schedule established in the approved site management plan using the method(s) described therein.

(b) Cleanup/Management Report. The Cleanup/Management Report shall detail remediation, treatment, and monitoring activities undertaken at the site by the responsible party as required by the approved site management plan. If the Cleanup/Management Report provides analytical data as evidence that levels of contamination at the site meet the requirements established in the site management plan for a risk-based closure or no further action as defined in R315-101-6(c)(2), the responsible party shall submit a certification of completion as outlined in R315-101-8(c), or request risk-based closure as outlined in R315-

3-1.1(e)(6), whichever is applicable.

(c) Certification of Completion. Within 60 days of the completion of all activities documented in the Cleanup/Management Report, a Certification of Completion of Cleanup/Management Action shall be submitted to the Executive Secretary by registered mail. The certification of completion shall state the site has been managed in accordance with the specifications in the approved Site Management Plan and shall be signed by the responsible party and by an independent Utah registered professional engineer.

(d) Oversight.

(1) The Executive Secretary or his representatives shall have access to the site as described in R315-2-12 and at all times when activity pursuant to R315-101 is taking place. The Executive Secretary or his representatives may take samples or make records of any visit to the site by photographic, electronic, videotape or any other reasonable means.

(2) The Executive Secretary shall bill the responsible party for review of plans submitted to meet the requirements of this Rule.

(3) The responsible party shall notify the Executive Secretary at least seven days prior to any sampling event or remediation activity.

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